

# SYSTEM FOR THERMAL AND CATALYTIC CRACKING OF CRUDE OIL

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## ABSTRACT OF DISCLOSURE

In this invention the system and processes for organization of oil refinery from  
10 gases and heavy admixtures with a separation of purified oil for fractions obtained in the  
process of thermal distillation, and thermal and catalytic cracking and subsequent fine  
separation of products for narrow fractions are presented. The combining of vortex vapor  
generation processes of preliminary heated oil in the field of inertia forces of rotating  
liquid with condensation processes of gaseous products at reduced pressure in vortex  
15 vapor condensers with cooled walls with utilization of subsequent heating and  
productions of fuels with narrow fraction composition permits to obtain a high quality  
product. New types of vortex devices are presented: the vortex separator of oil from  
water and admixtures, the vortex vapor generator for production of fine vapor fractions,  
the vortex vapor condenser for condensation of vaporized fractions, the vortex vapor  
20 generator in a catalyst layer moving in a boiling layer, which is a catalytic reactor with a  
regulated contact time between a catalyst and a boiling layer. A two-zone combustion  
furnace helps to decrease energy spending, improves combustion completeness.